said bi-directional Lambda 1 to Lambda "n" converter and packet generator converts said customer's data to a wavelength suitable for transfer through one of said plurality of wavelength packet multiplexers and said aggregation node.

25. The architecture according to claim 24, wherein transfer through said plurality of wavelength packet multiplexers results in said customer's data traveling further down-stream through said architecture.

26. The architecture according to claim 24, wherein transfer through said plurality of wavelength packet multiplexers results in said customer's data traveling further up-stream through said architecture.

27. The architecture according to claim 24, wherein said aggregation node receives wavelengths and packetized data from said bi-directional Lambda 1 to Lambda "n" converter and packet generator destined for up-stream primary distribution/aggregation nodes in said architecture.

28. The architecture according to claim 27, wherein said aggregation node optionally demultiplexes up-stream wavelengths in order to insert locally generated wavelengths and packets into an up-steam data path.

29. The architecture according to claim 10, wherein said local distribution wavelength packet router further comprises a plurality of switches that switch packets in

sequential time slots to said packet's respective customer's via one of millimeter wave radio, fiber and free space optical communications.

30. The architecture according to claim 1, further comprising:

a redundant path metropolitan ring back-up; and

wherein said local service domain further comprises a plurality of tertiary aggregation nodes.

31. The architecture according to claim 30, wherein said secondary aggregation node communicates with said primary distribution/aggregation node via fiber.

32. The architecture according to claim 30, wherein said tertiary aggregation nodes on a perimeter of said local service domain communicate with each other via a fiber mini-ring.

33. The architecture according to claim 30, wherein said tertiary aggregation nodes in an interior of said local service domain communicate with each other via free space optical communications.

34. The architecture according to claim 30, wherein said tertiary aggregation nodes on a perimeter of said local service domain communicate with each other via free space optical communications.

35. The architecture according to claim 30, wherein said secondary aggregation node communicates with said primary distribution/aggregation node via free space optical communications.

36. A network to provide local metropolitan switching and routing and broadband local access distribution comprising:

a distribution/aggregation routing layer that interfaces with a primary fiber metropolitan ring and a local customer primary distribution/aggregation node via transport branches of a mesh architecture;

a local distribution and routing layer that routes specific wavelengths and newly assigned wavelengths to and from a customer's premises; and

a cross-connect layer that handles customer specific wavelength and packet routing via one of fiber, millimeter wave radio and free space optical communications.